

# Newsletter IPNFA research committee

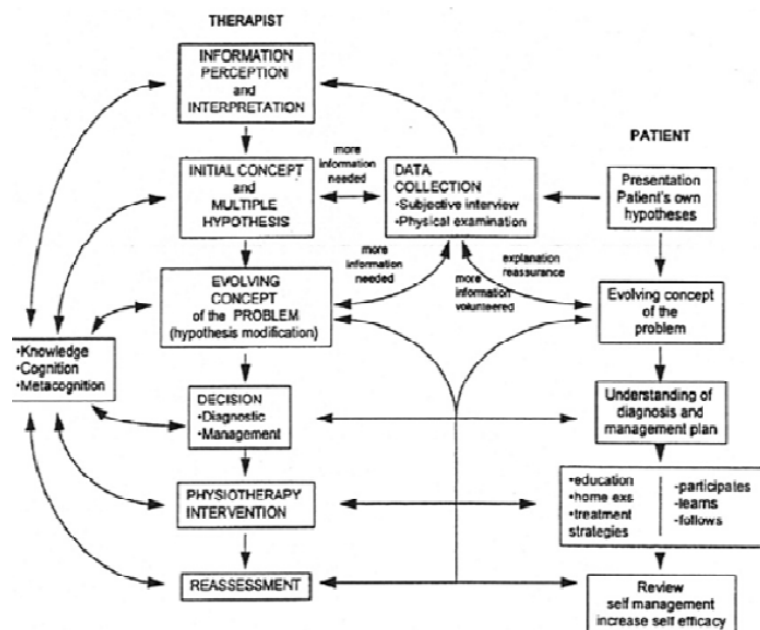
*The second newsletter....., oh this is a challenge, how and from where will we get material? But busy as PNF-ers are, we think we again can bring some interesting topics to you. I hope you all get motivated and interested in the science behind the profession.*

*I remember the discussion for the requirements on the testing of the level 5 course on the subject of clinical reasoning.(See meeting minutes 2010) So we start with a short introduction based upon work of Mark Jones. On behalf of the research committee, I wish a joyful reading. Fred.*

## ***From clinical reasoning to clinical decision making.***

In his text entitled Clinical Reasoning for Manual Therapists, Mark Jones defines clinical reasoning as "a process in which the therapist, interacting with the patient and significant others ... structures meaning, goals and health management strategies based on clinical data, client choices and professional judgment and knowledge." This definition has many of the elements and fits well with David Sackett MD's definition of evidence-based practice in that it has at its core the patient's values, the clinician's experience and best evidence. (*How good is the test in terms of reliability, sensitivity specificity etc.*) Clinical decision-making is what truly makes us who we are as professional physical therapists. The lesser trained, even unskilled, can perform nearly all of the techniques, but to be able to apply all of the prerequisite knowledge and to be able to know how and when to do exactly what, is what makes a good physical therapist. This knowledge skill set includes such things as knowing the patient; having built a professional relationship with them, how their condition is affecting their life, and what interactions their symptoms may be having with their biology/psychology/social life.

Considering the biopsychosocial model for treating patients in which the physical therapist uses their unique skill set to understand and treat the entire patient before them rather than a body part or diagnosis alone can sum all this up. I would dare say that treating patients in this way is what separates us in many ways from the lesser-trained professionals. The book cited above is a great read and I think necessary reading for all physical therapists regardless of experience level.



So it is all about thinking about your own thinking (metacognition) it allows the PT to approach patients in different ways, the chosen skill/intervention is then rooted in best practice and best evidence.

### Report of the WCPT conference

The WCPT conference is held every 4 year, this year the conference was hosted by the Royal Dutch Physical Therapy Association. The venue was located in the RAI in Amsterdam. We announced already that Agnieszka Stepień had a poster presentation with the subject on scoliosis. The poster is attached to this newsletter at page 5 Also Renata Horst was presenting a poster. Her study concerned shoulder complains with limited ROM and pain. Also this poster is attached to this newsletter at page 6

With these nice results we see that IP-NFA members are active and present at world level. I hope these posters can be presented in Vallejo as well.

Furthermore there were seminar sessions connected to the conference; one was held by Vicky and Gregory Johnsen.

IPNFA members meeting each other at this world venue is a lucky try, there were several thousand participants attending different parallel sessions, still some found each other or found former course participants. I met Agnieszka, and Louise, but sadly I missed Renata, we attended on different days.

F. Smedes



Agnieszka and Fred at the Dutch village in Amsterdam

1. Go to the <http://www.abstractstosubmit.com/wpt2011/abstracts/>  
This opens up a list of all congress topic areas.
2. To browse, stay on the All abstracts tab at the top
3. By clicking on the plus sign by the topic area, you can view a list of all the congress presentations within that topic area.
4. Click on paper titles to view the full abstract of that paper.
5. Click on the Presentation tab to view poster artwork or PowerPoint slides that accompanied a presentation.
6. To search for an individual paper, click on the Search tab on the main abstracts and presentations page.
7. You can search by any combination of abstract number, title, abstract text, author last name, or track/theme.

### World Physical Therapy Day, September 8 2011

The WCPT supports a day to promote physical therapy / physiotherapy. This day is September 8. and it's theme is: Movement for Health.

Suggestions how to promote the content, the value, the access to and the necessity of our profession can be found on the WCPT website.

An open day in your clinic or PT department is easy to organize, short treatment demo's of rehabilitation or maybe a video of "murder ball" (see YouTube....type: murderbal movie) can illustrate how much people gain regain activities and participation.

For all of you who are interested in these PR activities please visit:

<http://www.wcpt.org/node/28728>

**Movement for Health**  
8th September, World Physical Therapy Day



World Confederation  
for Physical Therapy

## HEMIPLEGIC HAND, first results

In this project 20 patients entered the program. The patients were allocated based on there location to a MT group and to a FT group. Both groups received functional treatment (FT) as is advocated in the literature. One group received additional manual therapy (MT) intervention on the wrist to enhance the role-glide mechanism of the carpal bones. There were 11 patients in the MT group and 9 in the FT group. In the MT group 1 patient passed away, and 1 patient refused all kind of intervention. So both groups were 9 patients with equal averages at the start of the project.

All patient were treated for 6 weeks, there were 3 moments of measuring; at the start, after 6 weeks and after 10 weeks. The obtained data concerned pain (VAS) AROM, PROM, grip strength, MAS and Frenchay Arm Test. The MT group improved on structural and on functional level, patients in the FT group slowly worsened. The final report with the statistical calculations is still in progress, I hope to be able to present it in January.

The project could be transferred to answer the question whether a specific PNF approach with timing for emphasis will have an additional value. The difficulty in the execution of a second program will be to find again cooperation with institutions and to find in the local area PNF trained therapists.

## PATIENT PERSPECTIVE

The experience to be patient in the healthcare system provides a different perspective.

It is good to realize how difficult it can be when others start to decide for you. I had to make that experience just at the time we were busy with this newsletter. I was hospitalized in early August because of a heart infarction and a dotter procedure with the placement of a stent. In my case even my former students were now my physiotherapists. At once other people start telling you what to do and when.

This is oft what we do to our patients too. It occurred to me once more that the component “*patient’s values*” from the evidence based practice paradigm is often violated.



Here some definitions and statements from research design and statistics: **Source:** Katz MH. Study design and statistical analysis, a practical guide for clinicians. *Cambridge University Press* 2006 Cambridge / New York

Treatment **efficacy** is how well an intervention works in a research setting and treatment **effectiveness** is how well it works in a clinical setting.

**Sensitivity** is positive in disease and **specificity** is negative in health. **Sensitive tests** (when negative) are helpful for “ruling out” disease and **specific tests** (when positive) are helpful for “ruling in” disease.

**Prevalence** is the proportion of individuals in a population who have a specific disease or condition at a particular moment in time.

**Incidence** rate is the number of new cases of a particular condition in an at-risk population per unit time.

A **confounder** is associated with the risk factor and is causally related to the outcome

**Table 2.5.** Commonly used observational study designs

Type of observational study	When risk factors are measured	Advantages	Disadvantages
Cross-sectional	At the same time as the outcome	Determines prevalence	Weak evidence for causality
Prospective cohort	Prior to the outcome	Decreases likelihood that reverse causality is cause of association, eliminates recall bias, and determines incidence	Expensive, time consuming
Case-control	After the outcome	Efficient method for identifying cases (especially for uncommon diseases)	Selection bias (due to choice of controls and due to losses occurring before selection of cases and controls), and recall bias
Nested case-control	Prior to the outcome (testing of specimens may occur after outcome, but specimens are collected prior)	Efficient method for identifying cases and controls, minimizes recall bias	Requires foresight in the design of the prospective cohort
Ecologic study (aggregate data)	Varies	Allows study of broad social policy questions	Subject to the ecologic bias

### From GREECE an abstract: PNF and Chronic Low Back Pain

Savvas P. Mavromoustakos: Effectiveness of the PNF (Proprioceptive Neuromuscular Facilitation) method on motor control of patients with Chronic Low Back Pain.

The present study was designed to examine the effectiveness of PNF method on pain relief and function in patients with non specific chronic low back pain.

Eighty-four patients with chronic low back pain from an outpatient department were included in the study. Patients were randomly allocated to either the PNF group or general exercise group. The PNF intervention focused in the treatment of motor control inefficiencies presented in patients with non specific chronic low back pain, in order to reduce pain and to achieve highest level for functional activities. During intervention, all PNF procedures were applied in a pain free manner and with respect to patient's individual characteristics both in physical and psychological levels.

Motor control's theoretical background like active participation, repetition, variability in practice, and activities adaptation to the patient's functional context incorporated into the PNF applied procedures. Both protocols were designed to include 12 one-hour sessions, 2 days a week for 8 weeks. The primary outcome measure was low back pain-related functional disability, assessed by the Roland Morris Disability Questionnaire, and the McGill Pain Questionnaire was used as the questionnaire offers a methodological approach to assess the sensory, affective, and evaluative components of pain.

Evaluations were carried out at three instances: before treatment, at the end of the intervention (8 weeks later), and four months after the end of the intervention. Data analysis was carried out using SPSS® for Windows. The level of significance was set at  $p < 0.05$ . According to the results of the statistical analysis, there was significant decrease in pain and significant increase in functionality of the patients. The PNF method is recommended as a treatment for the patient with chronic low back pain.

By convention, a **probability (P-value)** of less than 0.05 is said to be *statistically significant*.

**Table 5.1.** Statistics for assessing an association between two variables, unpaired data

Risk factor (Independent variable, exposure, group assignment)	Outcome (dependent variable)					
	Dichotomous	Nominal	Interval, normal distribution	Interval non-normal	Ordinal	Time to event, censored data
Dichotomous	Chi-squared, Fisher's exact test, risk ratio, odds ratio	Chi-squared	t-test	Mann-Whitney test	Chi-squared for trend, Mann-Whitney test	Log-rank, Wilcoxon, rate ratio
Nominal	Chi-squared, exact test	Chi-squared	ANOVA	Kruskal-Wallis test	Kruskal-Wallis test	Log-rank, Wilcoxon
Interval, normal distribution	t-test	ANOVA	Linear regression, Pearson's correlation coefficient	Spearman's rank correlation coefficient	Spearman's rank correlation coefficient	–
Interval, non-normal	Mann-Whitney test	Kruskal-Wallis test	Spearman's rank correlation coefficient	Spearman's rank correlation coefficient	Spearman's rank correlation coefficient	–
Ordinal	Chi-squared for trend, Mann-Whitney test	Kruskal-Wallis test	Spearman's rank correlation coefficient	Spearman's rank correlation coefficient	Spearman's rank correlation coefficient	–





# Rotation of the trunk and pelvis and coupled motions in the sagittal plane in adolescent girls with idiopathic scoliosis.

Stępień A., Domaniecki J., Trzaskoma Z.

**Relevance:** There is no effective method in physical therapy for patients with scoliosis. Modern medicine tends to analyze scoliosis in three dimensions. Only a few researches analyze the movements of the spine in subjects with scoliosis. Rotation of the trunk and pelvis are components of body movements observed in activities of daily living and locomotion.

**Purpose:** A purpose of this study was to evaluate the range of motion (ROM) of the trunk and pelvis in the standing position in adolescent girls with idiopathic scoliosis. Secondary objective was to describe the angular motions of the trunk and pelvis in the sagittal plane coupled with rotation.

**Participants:** 59 girls with idiopathic scoliosis (S) and 30 healthy girls (K) at the age 10–18 (S -14,4, K -13,7) participated in the study. The right thoracic curve or the left lumbar curve at the spine radiography were the criteria for further measurements. Four groups including girls with different types of scoliosis were formed (L, W, T1,T2). (Fig.1)

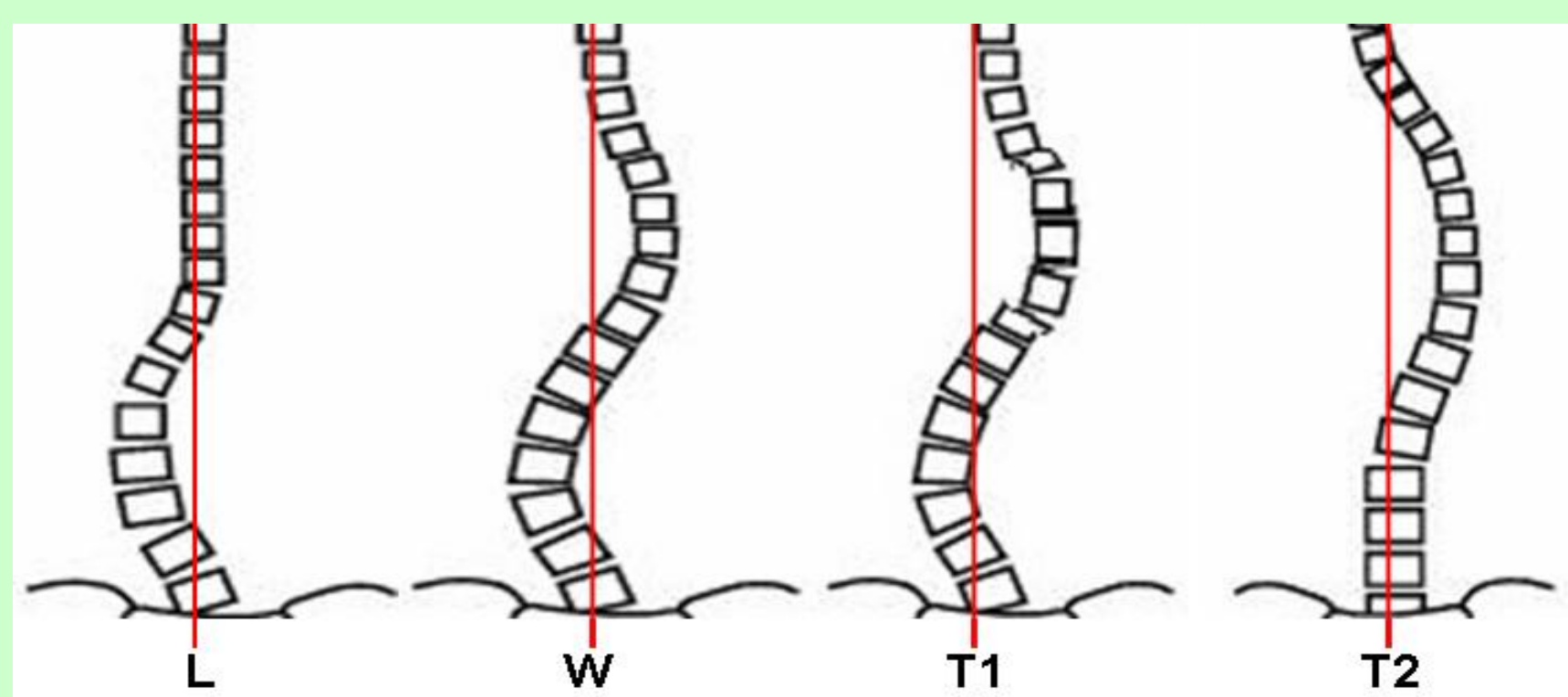


Fig.1. Four groups, different types of scoliosis

**Methods:** A computer-based axial rotation tester (Fig.2) was applied to assess ROM of rotation and coupled motions in the upright standing position. The thoracic cage or pelvis were fixed during tested motions. Special sensors placed under the feet were used to prevent compensation during rotation of the pelvis.

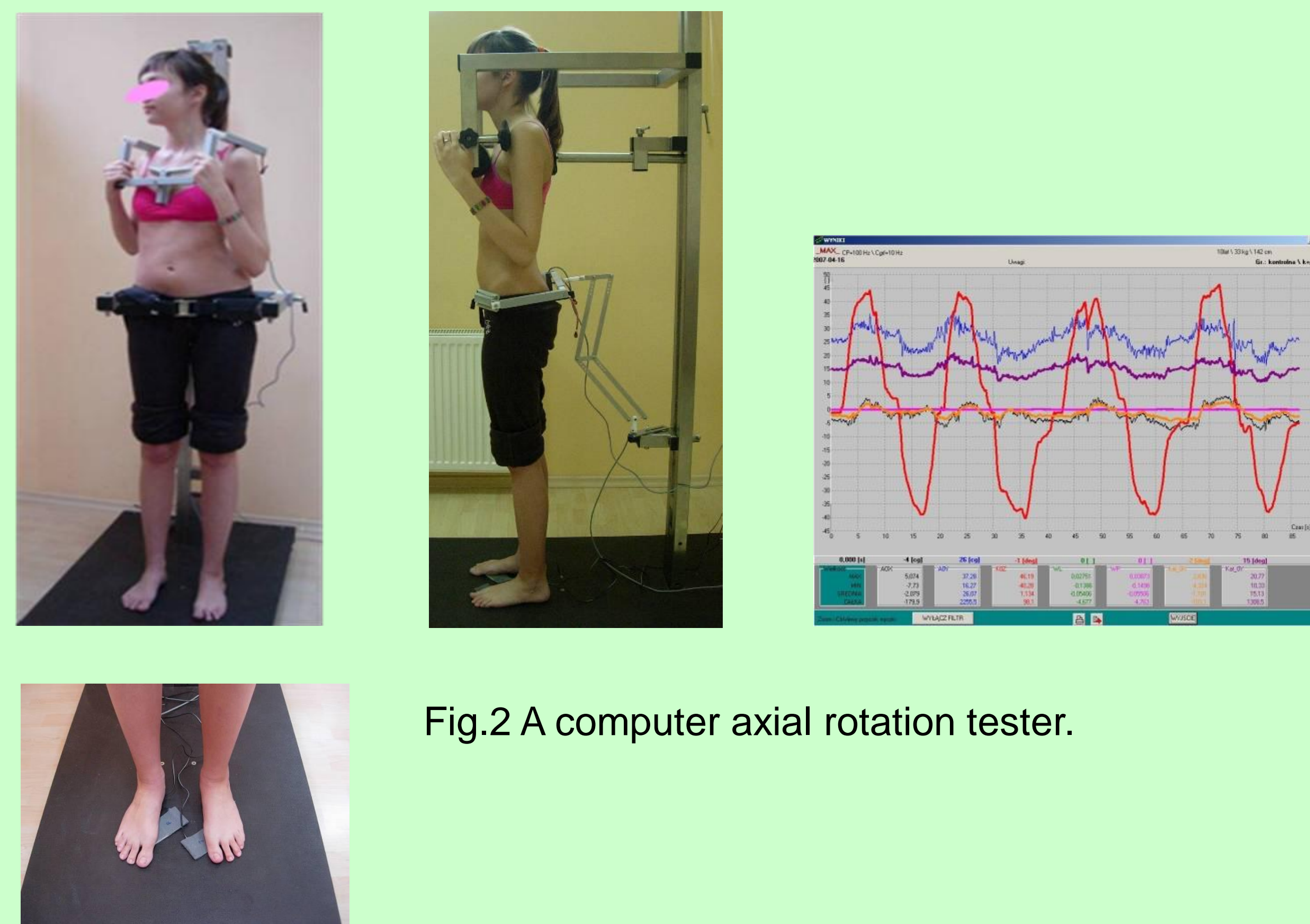
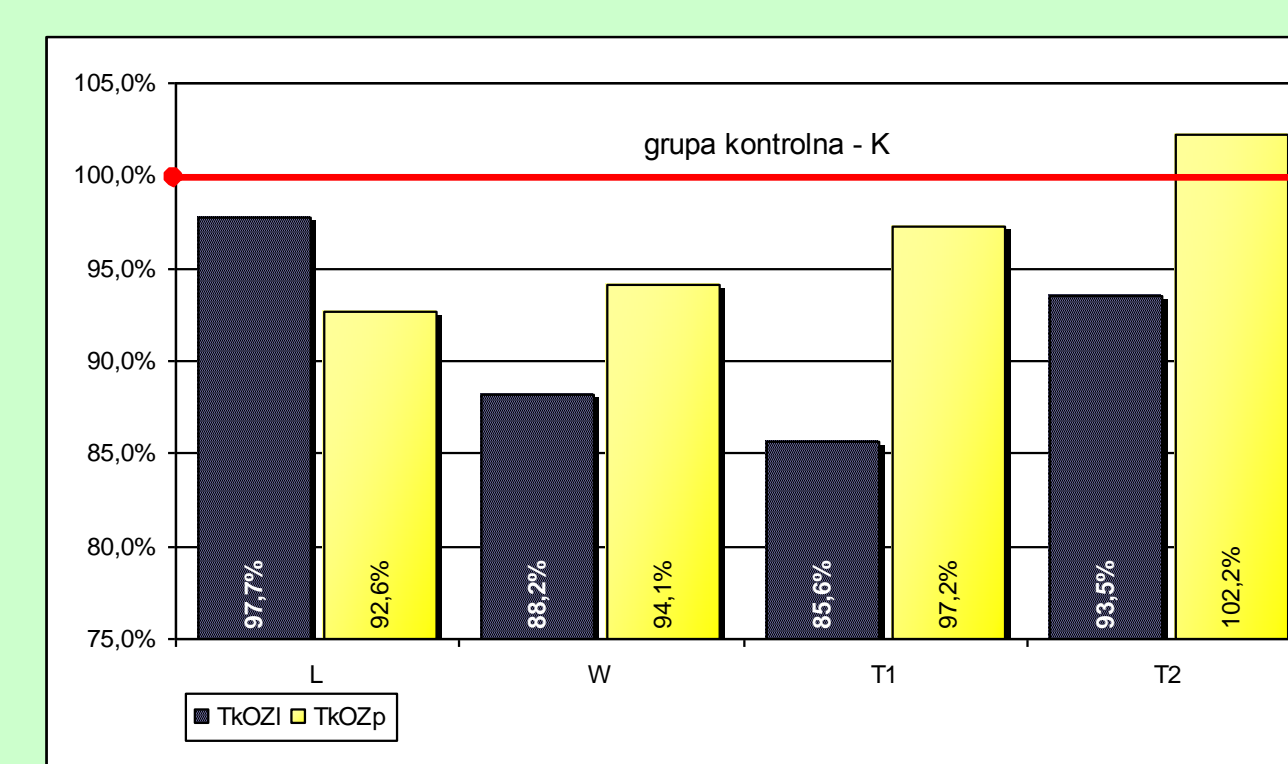


Fig.2 A computer axial rotation tester.

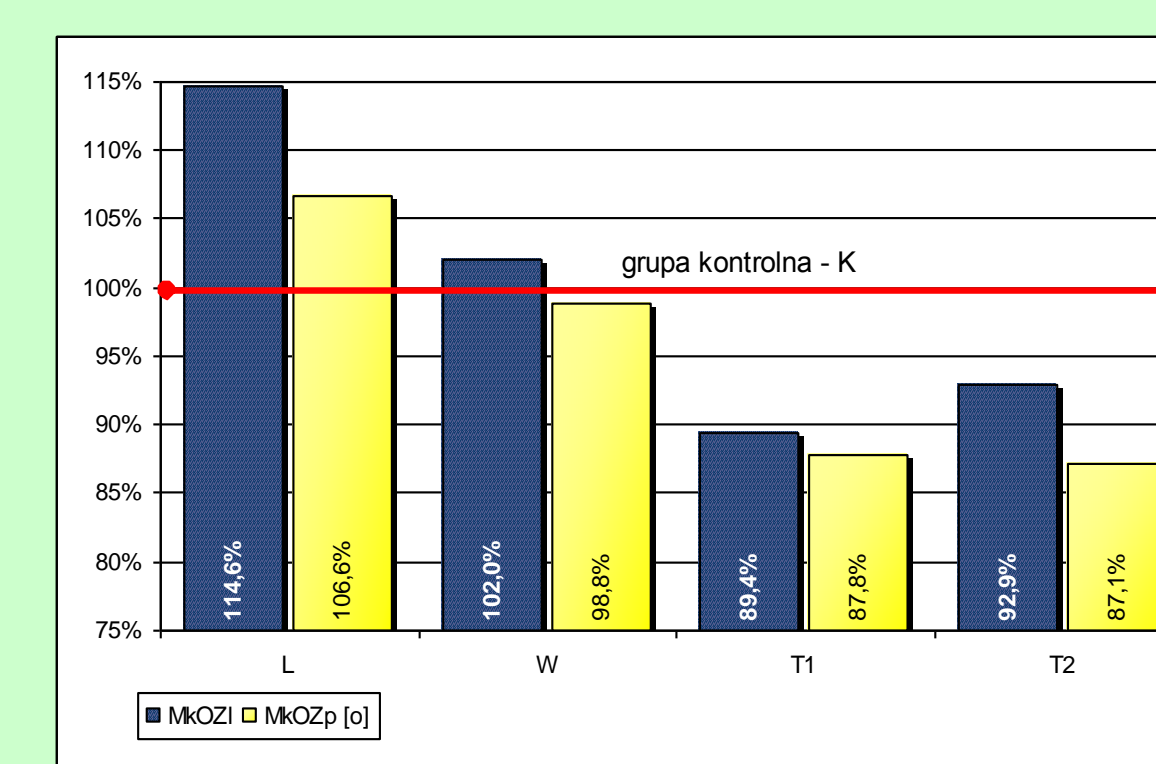
Maximum value of six successive movements of rotation ( 3 left, 3 right) were taken into the account in analysis. 30 healthy girls without scoliosis were tested as the control group in agreement with the same lines of conducts.

ANOVA test and T-test were used in statistic analyze.

**Results:**There is decreased ROM of rotation of the trunk (Gr. 1, Tab.1) and pelvis (Gr.2, Tab.1)in girls with double curve scoliosis with the dominant thoracic curve. There is increased ROM of the pelvis rotation in girls with single or double curve scoliosis with the dominant left lumbar curve. There are differences between values of the right and left rotation in girls with scoliosis.



Gr. 1. Trunk - ROM of rotation



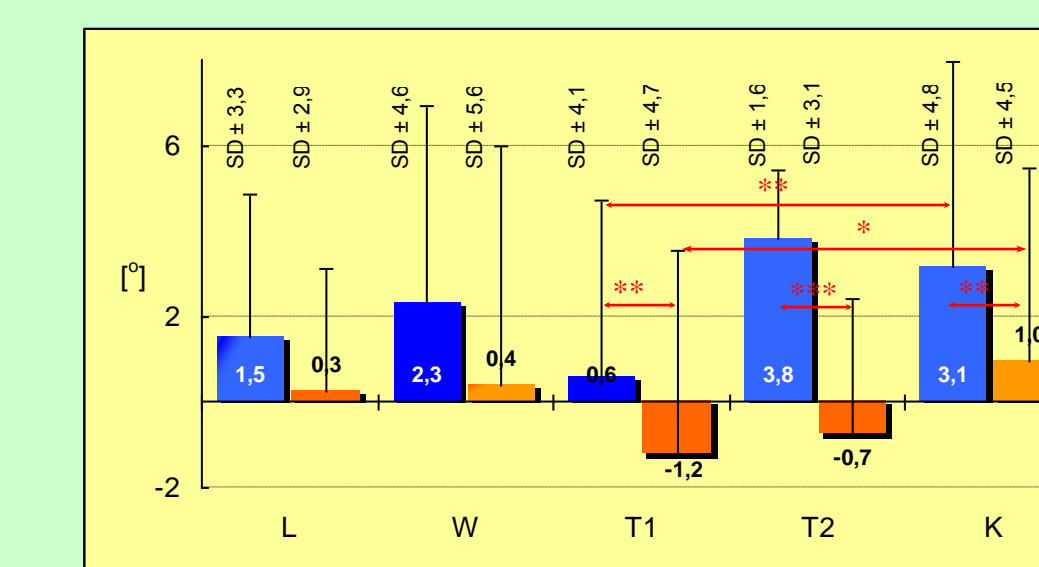
Gr.2 Pelvis – ROM of rotation

left right

Tab.1. ROM of rotation. Trunk and pelvis

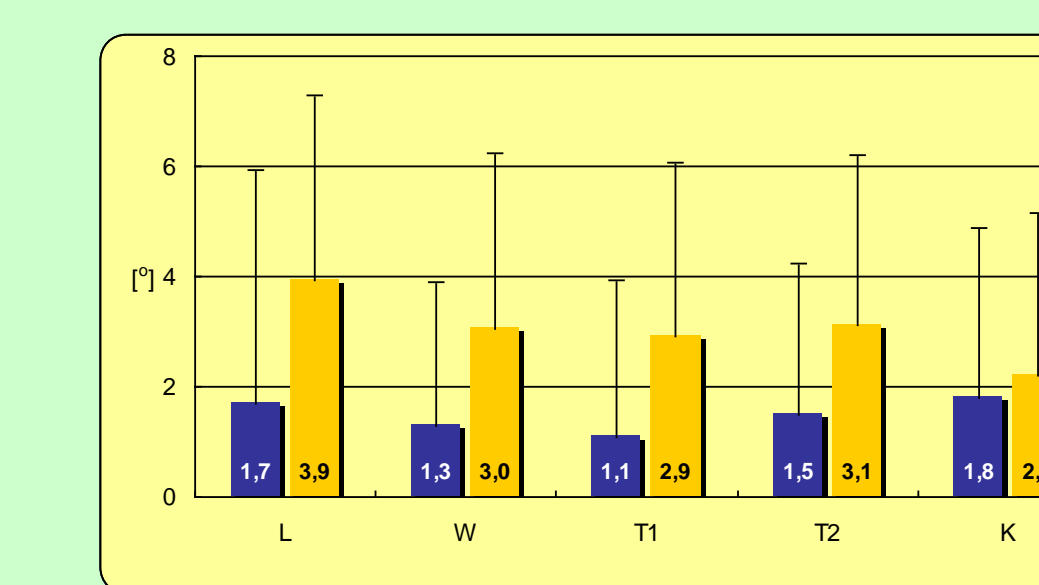
	L	W	T <sub>1</sub>	T <sub>2</sub>	K
Trunk left rotation [°]	34,3 ± 9,55	31,0 ± 8,73	30,1 ± 7,71	32,9 ± 11,32	35,1 ± 8,99
Trunk right rotation [°]	33,4 ± 9,12	33,9 ± 6,84	35,0 ± 6,87	36,8 ± 12,23	36,0 ± 8,97
Pelvis left rotation [°]	37,2 ± 7,39	33,1 ± 9,45	29,0 ± 8,69	30,1 ± 5,24	32,4 ± 8,57
Pelvis right rotation [°]	33,1 ± 7,28	30,7 ± 7,57	27,2 ± 5,54	27,0 ± 6,75	31,0 ± 7,54

Right rotation of the trunk is correlated with lower value of flexion comparing to the left rotation in subjects with the right thoracic curve.



Gr.3 Trunk rotation and coupled motions in the sagittal plane

Right rotation of the pelvis is coupled with increasing anterior pelvic tilt in all formed groups.



Gr.4 Pelvis rotation and coupled motions in the sagittal plane.

left right

**Conclusions:** There are significant differences in ROM in the transverse plane between girls with scoliosis and the healthy group. The trunk and pelvis rotation ROM and coupled angular motions in the sagittal plane depend on a type of scoliosis, especially on location of the dominant curve of scoliosis. The trunk and pelvis angular motions in sagittal plane associated with rotation depend on a direction of rotation.



# CLIENTS WITH LIMITED RANGE OF MOTION (ROM) AND PAIN IN THE SHOULDER GIRDLE: is therapy of body structures/functions within daily life activities (dla) more effective than treatment which prepares structures for dla? *A randomized controlled double-blinded study with follow-up.*

Author: Renata Horst, MSc, Weiterbildungsinstitut Ingelheim, Stiegelgasse 40, 55218 Ingelheim, Germany ([www.renatahorst.de](http://www.renatahorst.de))

*Study performed at the Cracow Rehabilitation Center, Poland*

## INTRODUCTION

The purpose of this study was to investigate whether a contemporary therapy method (**NAP**), which incorporates structural treatment within dla, more effective is than therapy methods (TRAD), which primarily focus on treatment at the structural level.

Furthermore, it was analyzed if results attained after 2 weeks of treatment remain constant or change after 3 months without further therapy.

## METHODS

66 patients with limited range of motion and pain in the shoulder girdle were randomly chosen and divided into two groups and stratified according to age and gender.

One group (TRAD) received 30 min. of treatment with traditional Manual Therapy and PNF and one group received 30 min. of treatment with **NAP**.

All patients received the same additional treatment, entailing kryotherapy, arm ergometer and pulley training, as well as laser therapy.

Pain, ROM, strength, as well as quantity and quality of dla were assessed  
a) before therapy began,  
b) after 2 weeks of treatment and  
c) after 3 months without treatment.



**Manual Therapy:** Traction in loose - packed position.



**PNF:** Arm pattern: Flexion/Abduktion/External Rotation

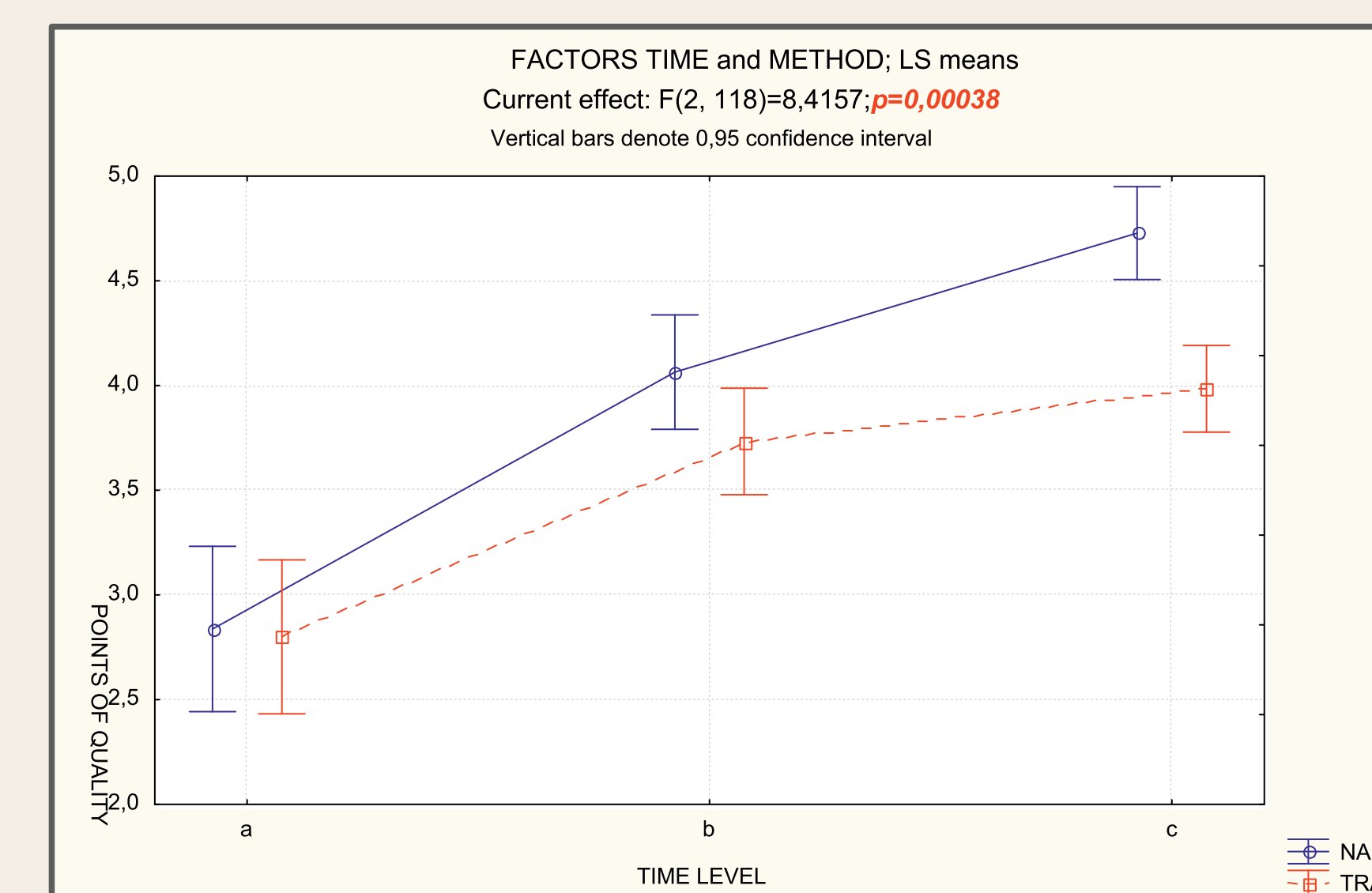


**NAP:** Action massage for pectorales minor while undressing.

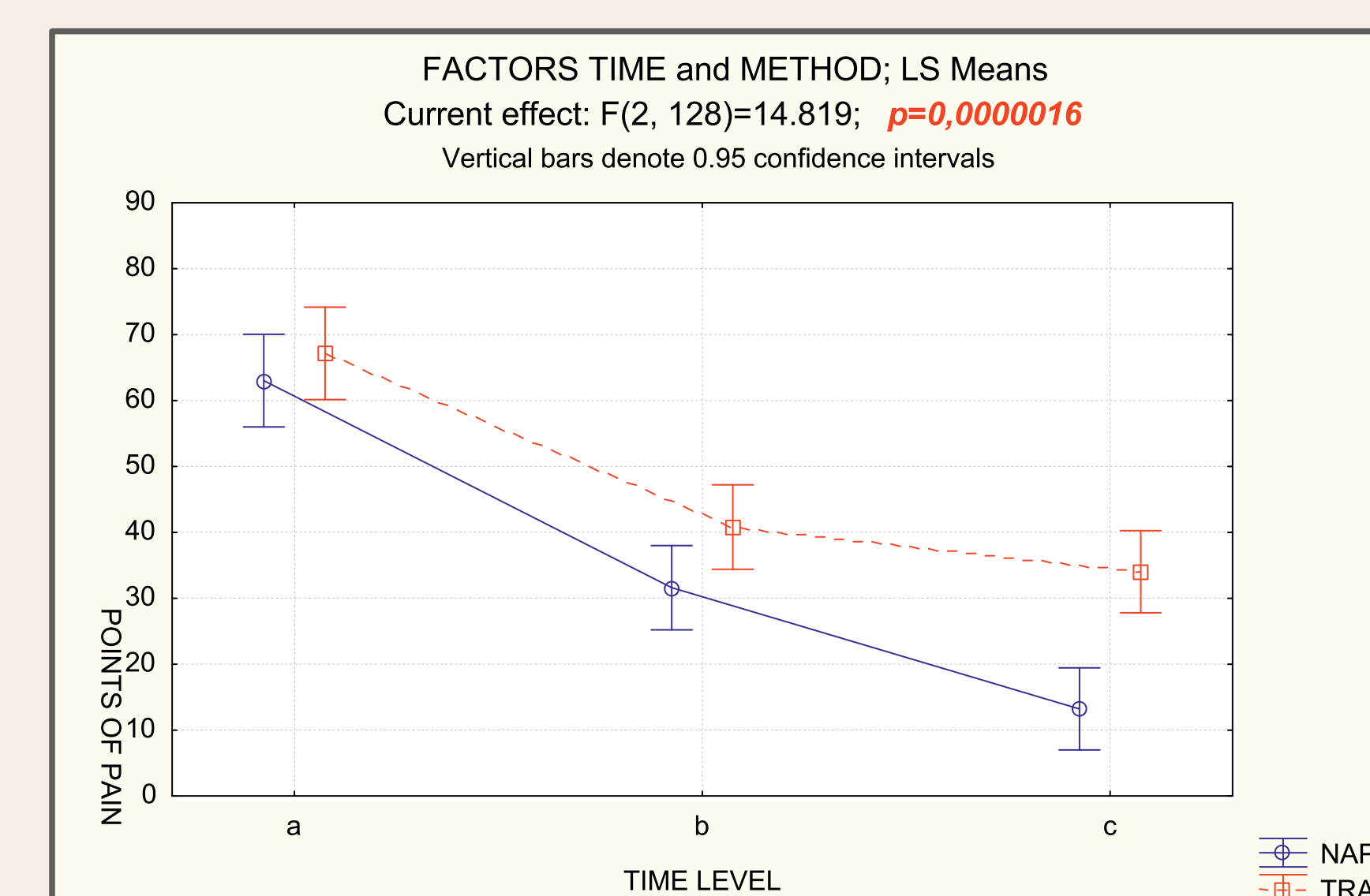
## RESULTS

During time both groups (TRAD + **NAP**) made improvements at the body structural/functional and activity (quantity/quality) levels.

However, **NAP** showed faster and more significant improvements at all levels.



**Graph 1:** Level of activities improves significantly after 2 weeks of treatment and after 3 months follow up.



**Graph 2:** Pain decreases significantly after 2 weeks of treatment and after 3 months without training.

## CONCLUSION

Time leads to improvements at the body structure/function and activity levels no matter which method is used.

**NAP**, however, proved to achieve these results faster. Overall, the patients treated with **NAP** reached a significantly higher level of activity and experienced significantly less pain than the patients treated with traditional methods of Manual Therapy and PNF.

It is concluded, if structures are influenced during the goal-oriented activity, learning not only occurs faster, but can be expected to continue after therapy has been completed.

**References:** Plautz et al. 2000, Remple et al. 2001, Markham and Greenough 2004, Froemke et al. 2007

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